APPLICATION NO 09/753616

August 24, 2004

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CLMPTO

2. (Twice Amended) A CMOS image sensor comprising a pixel consisting of:

a photodiode having an impurity region formed in semiconductor substrate;

a first MOS transistor formed on said semiconductor substrate, the first MOS transistor having an impurity region as a drain connected to said impurity region of said photodiode;

a second MOS transistor formed on said semiconductor substrate, the second MOS transistor having an impurity region as a source connected to a source of said first MOS transistor; and

a third MOS transistor formed on said semiconductor substrate, the third MOS transistor having an impurity region as a source connected to a drain of said second MOS transistor.

2. 6. The CMOS image sensor according to claim 2, wherein a MOS transistor circuit for processing a signal output from said third MOS transistor is formed on said semiconductor substrate.

3. 4. The CMOS image sensor according to claim 1, wherein a timing circuit for supplying a signal to each gate of said first and third MOS transistors at a predetermined timing is provided on said semiconductor substrate, and a reading-out circuit for reading out a signal output from said third MOS transistor is provided on said semiconductor substrate.

4. 5. The CMOS image sensor according to claim 1, the CMOS image sensor further comprising:

an interlayer insulating film for covering said first to third MOS transistors;

a wiring formed on said interlayer insulating film; and

a connection plug buried in said interlayer insulating film, and the connection plug connecting said wiring to at least one of the sources and the drains of said first, second and third MOS transistors electrically.

5. 6. The CMOS image sensor according to claim 1, wherein the source of said first MOS transistor, the source/drain of said second MOS transistor, and the source/drain of said third MOS transistor have an LDD structure, and the drain of said first MOS transistor has no LDD structure.

CLAIMS 7-13 (CANCELLED)

14. A CMOS image sensor comprising:

a photodiode having an impurity region formed by introducing impurities into the semiconductor substrate;

first and second MOS transistors having source regions and drain regions formed respectively by introducing impurities into the semiconductor substrate; and

an insulating film formed on the first and second MOS transistors, the insulating film having contact holes reaching the source regions and drain regions of the first and second MOS transistors,

wherein a silicon oxide film is formed on a surface of the impurity region of the photodiode and the drain region of the first MOS transistor which connects to the impurity region of the photodiode, but a silicide film is formed on a surface of the source region of the first MOS transistor which is also the drain region of the second MOS transistor and on a surface of the drain region of the second MOS transistor.

15. A CMOS image sensor comprising:

a photodiode having an impurity region formed by introducing impurities into the semiconductor substrate;

first and second MOS transistors having source regions and drain regions formed respectively by introducing impurities into the semiconductor substrate; and

an insulating film formed on the first and second MOS transistors, the insulating film having contact holes reaching the source regions and drain regions of the first and second MOS transistors,

wherein a silicon oxide film is formed on a surface of the impurity region of the photodiode and the drain region of the first MOS transistor which connects to the impurity region of the photodiode, but a silicide film is formed on a surface of the source region of the first MOS transistor which is also the drain region of the second MOS transistor and on a surface of the drain region of the second MOS transistor, and

a concentration of the impurity region of the photodiode differs from that of the drain region of the first MOS transistor.